

center for  
**Healthy Aging**  
model health programs for communities

# Designing Safe and Effective Physical Activity Programs



THE NATIONAL  
COUNCIL ON  
THE AGING

**“There are few things you can do that have a more profound effect on more bodily systems than exercise... We were meant to be active animals. It’s our active state. By being sedentary, we put ourselves in an unnatural state.”**

*Dr. Steven Blair, Director of Research, Cooper Institute for Aerobic Research. Interviewed, January, 2002*

## Introduction

This brief is the second in a series promoting best practices in physical activity programming for older adults. The inaugural issue [Number 1, Spring 2004; available at [http://www.ncoa.org/attachments/HA Breb%20Epdf](http://www.ncoa.org/attachments/HA%20Breb%20Epdf)] presented an overview of the National Council on the Aging (NCOA) national competition for best practice programs and announced the ten organizations selected for hosting outstanding physical activity programs. The current issue brief provides an overview of the health benefits of physical activity, best practices in programming, and guidelines and recommendations regarding physical activity for older adults developed by a coalition of national organizations led by the American College of Sports Medicine (Cress, et. al. 2004). Organizations that have been offering recreational physical activity programs can increase the health benefit of their programs by attending to the topics addressed in this issue brief, including: the key components of a physical activity program, strategies for addressing behavior change, and guidelines for injury and risk management both in general programming and for specific chronic conditions and disabilities.

## Why Physical Activity?

Physical activity offers one of the greatest opportunities to extend years of active independent life, reduce disability, and improve the quality of life for older adults. Unfortunately, simply disseminating information about the health benefits of moderate physical activity does not appear to be sufficient to increase participation levels. We need to document best practices to help community settings reproduce proven, safe, and effective physical activity programs. These programs must match the interests and functional abilities of specific adult populations and must encourage and motivate adults to make the transition from sedentary to healthy, active lifestyles.

## Key Components of Physical Activity Programs for Older Adults

A well-rounded physical activity program should include endurance, strength, balance, and flexibility components. Activities tailored to the individual's specific needs and interests will ensure maximum enjoyment and greatest adherence to the physical activity program.

## Endurance Activities

Endurance-related physical activity refers to continuous movement that involves large muscle groups and continues for a minimum of 10 minutes. Endurance activities provide the greatest protection against the deleterious effects of chronic diseases associated with aging. Common examples of endurance activities include biking, swimming, and walking. Additionally, other lifestyle activities that build endurance when performed for at least 10 minutes without rest intervals include household chores (such as washing windows, vacuuming, sweeping, and mopping), and gardening activities (such as lawn mowing, raking, and pruning). Some simple guidelines for endurance activities include the following:

- The progression from low to moderate intensity optimizes the benefits of physical activity and increases retention of participants in the program.
- As participants become more accustomed to the physical activity, the workload will usually have to increase to keep the activity at a moderate intensity level.
- Older adults need help to set realistic, moderate goals; revising those goals as their fitness levels improve is equally important.

At sufficient intensity, endurance activities become aerobic. More fit older adults who engage in aerobic activities may use the talk test as a tool to evaluate the intensity of aerobic activity. If talking becomes difficult during exercise, that indicates an inadequate oxygen supply to meet the demands of the respiratory system and the muscles. In this case, the older adult needs to reduce the intensity of the activity.

## Strength Activities

Strength-related activity refers to increasing muscle strength by moving or lifting some type of resistance, such as weights or elastic bands, at a level that requires some physical effort. Strength development is safe for older adults, with injuries reported only rarely. The following recommendations offer guidelines for strength activity:

- In general, one to three sets of 10 to 12 repetitions provide the optimal amount of activity for increasing muscle strength.
- Experts recommend strength training on alternate days to allow a rest day in between to give the muscles time to recover between sessions.

- While a strengthening regimen should include both upper- and lower-body muscles, muscles of the lower body (ankles, hips, and leg extensors and flexors) are particularly important for mobility and independence.

## Flexibility Activities

Flexibility-related activity facilitates greater range of motion around the joints and increases the length of the muscle beyond that customarily used in normal activity. Guidelines include the following:

- Experts recommend performing these exercises at least two days a week.
- Participants can be shown that flexibility activities fit conveniently into ordinary daily routines, for instance while sitting at a computer, watching TV, or traveling in an airplane.
- Stretching should include appropriate static and dynamic techniques. In dynamic stretching, for example arm circles, the muscle moves through the full range of motion of a joint. A static stretch lengthens the muscle across the joint, holding the stretch for 10 to 30 seconds.

A sample flexibility and balance exercise program can be accessed online through the National Center for Physical Activity and Disability: [http://www.ncpad.org/exercise/fact\\_sheet.php?sheet=144&section=1104](http://www.ncpad.org/exercise/fact_sheet.php?sheet=144&section=1104)

## Balance Activities

Balance means the ability to maintain control of the body over the base of support to avoid falling. Two types of balance, static and dynamic, refer respectively to the ability to maintain balance without moving and the ability to move without losing balance or falling. Activities that challenge the ability to maintain standing balance by decreasing the base of support can improve static balance. Similarly, activities that decrease the base of support while walking can improve dynamic balance. The following recommendations guide balance-improving activities:

- Exercises for static balance begin with standing with feet apart and progress to standing with feet together and then to a single-leg stance without using external support. At first, the person may need to rely on a solid object such as a kitchen counter for support; over time reliance on the support will gradually decrease.

- To challenge balance even further, an individual can repeat the above progression with eyes closed. Some daily activities require the ability to balance with eyes closed (e.g., standing in a shower shampooing hair).
- To challenge dynamic balance, an individual might progress from the normal walking pattern to walking on a straight line and then walking heel-to-toe. To challenge balance even further, the participant can walk to the side or use crossover/grape vine stepping.

The publication, *Exercise: A Guide*, from the National Institute on Aging [<http://www.niapublications.org/exercisebook/index.asp>], provides a good source of strengthening, balance and flexibility exercises for older adults beginning an exercise program.

## Behavioral Factors Associated with Initiating and Maintaining Physical Activity

A growing body of knowledge suggests that effective physical activity interventions include several well-established strategies for behavior change.

- **Social Support:** Successful programs include peer support—“tell a friend and bring a friend” or an exercise buddy system. Professional health educators and volunteer health mentor supports, including telephone counseling or mail follow-up, have been shown to also effectively improve program success.
- **Active Choices:** Physical activity leaders who work closely with individuals to design a regimen that reflects the person’s preferences and capabilities generally have greater success than those who provide generic programs. Providing choices on exercise characteristics—group versus individual activities—can contribute to greater adherence.
- **Health Contracts:** Setting up a contract with the participant that includes realistic goal setting and a measurable plan of action for reaching goals will help to reinforce commitment to the exercise routine.
- **Perceived Safety:** Program staff can help to alleviate concerns about safety by educating participants about the actual risks of physical activity and by helping individuals self-monitor their exercise intensity levels.

- **Regular Performance Feedback:** Regular performance feedback can help older adults develop realistic expectations and evaluations of their progress.
- **Positive Reinforcement:** Recruitment incentives, rewards for reaching target goals, and public recognition for attendance can reinforce participants' behavior.

## Principles of Injury and Risk Management

The US Preventive Services Task Force does not recommend any type of cardiac screening prior to beginning an exercise program for healthy, asymptomatic adults of any age. Older adults should, however, be given strategies for risk management and prevention of activity-related injuries. The best approach starts with low-intensity physical activity and increases the intensity gradually over time. When possible, the exercise program should incorporate a warm-up and cool-down period. Some general guidelines for beginning an exercise program include the following:

- Incorporate exercises to increase muscular strength around weight-bearing joints, particularly the knee, to reduce the risk of musculoskeletal injury.
- Include active stretching during the warm-up and cool-down phases of aerobic programs.
- Avoid vigorous activities, such as jogging, when first starting on an exercise regime unless accustomed to this level of activity.
- Incorporate a variety of different activity choices to most likely reduce the risk of overuse injuries.

Based on discussions with a health care provider or exercise professional(s), older adults with chronic conditions or disabilities should understand the amount and types of activity that are appropriate for them. For more information, visit the National Center for Physical Activity and Disability website [[www.ncpad.org](http://www.ncpad.org)].

## Recommendations for Frequency and Intensity of Physical Activity

Physical activity should be an integral part of daily life. It is recommended that people of all ages at a minimum participate in moderate physical activity, such as walking, at least 30 minutes a day, 10 minutes at a time, five days per week. That is, physical activity provides benefits even in shorter sessions of moderate activity, such as walking for 15 minutes twice a day or walking for 10 minutes three times daily. The challenge is to help older adults recognize the value of activity, appreciate the health benefits, and learn to integrate the components of an effective program—endurance, strength, flexibility and balance—into a more active lifestyle.

## Practical Application

In collaboration with the University of Illinois, Chicago, NCOA is conducting a year long, randomized trial of three best practice programs to measure the health and quality of life benefits to older adult participants. The programs in this study include Holy Cross Hospital, Silver Spring, MD; Madison School & Community Recreation, Madison, WI; and Resources for Seniors, Inc., Raleigh, NC. These programs incorporate the concepts identified in this brief, offering a range of activities embedded within their older adult physical activity programs. Results will be available in 2005.

## Reference

Cress, M.E., Buchner, D.M., Prohaska, T., Rimmer, J., Brown, M., Macera, C., DiPietro, L., Chodzko-Zajko, W. (2004). ACSM Best Practices Statement—Physical activity programs and behavior counseling in older adult population. *Medicine and Science in Sports and Exercise*, 36,11, 19917-2003.

## Additional Resources

**AARP.** AARP Exercise Attitudes and Behaviors: A Survey of Midlife and Older Adults. Washington DC: AARP, 2004.

**American College of Sports Medicine.** ACSM Fitness Book. Champaign IL: Human Kinetics, 2002.

**American College of Sports Medicine.** ACSM Resource Manual for Guidelines for Exercise Testing and Prescription. 4th Edition. Champaign IL: Human Kinetics, 2001.

**American Council on Exercise.** Exercise for Older Adults. Champaign IL: Human Kinetics, 1998.

**Best-Martini EB-DKA.** Exercise for Frail Elders. Champaign IL: Human Kinetics, 2003.

**National Center for Physical Activity and Disability.** First Steps to Active Health: Balance and Flexibility Exercises for Older Adults. Accessed December 17, 2004 [http://www.ncpad.org/exercise/fact\\_sheet.php?sheet=144&section=1104](http://www.ncpad.org/exercise/fact_sheet.php?sheet=144&section=1104)

**National Institute on Aging.** Exercise: A Guideline from the National Institute on Aging. Washington DC: 1998. Accessed December 17, 2004. <http://www.niapublications.org/exercisebook/index.asp>

### SUGGESTED WEB SITES

**The National Blueprint: Increasing Physical Activity Among Adults Age 50 and Older**  
[www.agingblueprint.org](http://www.agingblueprint.org)

**National Center for Physical Activity and Disability**  
[www.ncpad.org](http://www.ncpad.org)

**The National Council on the Aging, Center for Healthy Aging**  
[www.healthyagingprograms.org](http://www.healthyagingprograms.org)

**International Council on Active Aging**  
[www.icaa.cc](http://www.icaa.cc)

**Center for Healthy Aging**  
[www.healthyagingprograms.org](http://www.healthyagingprograms.org)

## Action Steps

Safe physical activity programs that motivate older adults to adopt a more active lifestyle share similar characteristics, as described in this issue brief. When developing or evaluating the effectiveness of community physical activity programs, consider these recommendations:

- Include options to promote endurance, strength, balance, and flexibility.
- Provide a variety of activity choices.
- Target the program to a specific population of older adults.
- Provide incentives and social opportunities.
- Finally, address issues related to safety and risk management.

## Future Issue Briefs

Subsequent issues will present strategies for:

- Recruiting and retaining qualified staff for your programs
- Keeping current with the research in physical activity programming
- Recruiting, retaining, and reengaging participants in the programs
- Effectively evaluating physical activity programs

The Center for Healthy Aging, NCOA is also developing a second series of issue briefs that focus on evidence-based health promotion and wellness programming. Both series will be posted on the NCOA Web site [www.ncoa.org](http://www.ncoa.org) and the new Center for Healthy Aging Web site at [www.healthyagingprograms.org](http://www.healthyagingprograms.org)

## **Acknowledgments**

The contents of this brief represent the work of many dedicated principals in research and practice working to promote a more active lifestyle for all ages. The Department of Kinesiology University of Illinois at Urbana-Champaign and funded by the Robert Wood Johnson Foundation prepared this issue brief focused on safe and effective programs to promote healthy aging under the Active Aging Partnership initiative *<http://www.agingblueprint.org/partnership.cfm>*.

### **The National Council on the Aging**

300 D St., S.W. Suite #801  
Washington, D.C. 20024  
Phone (202) 479-1200